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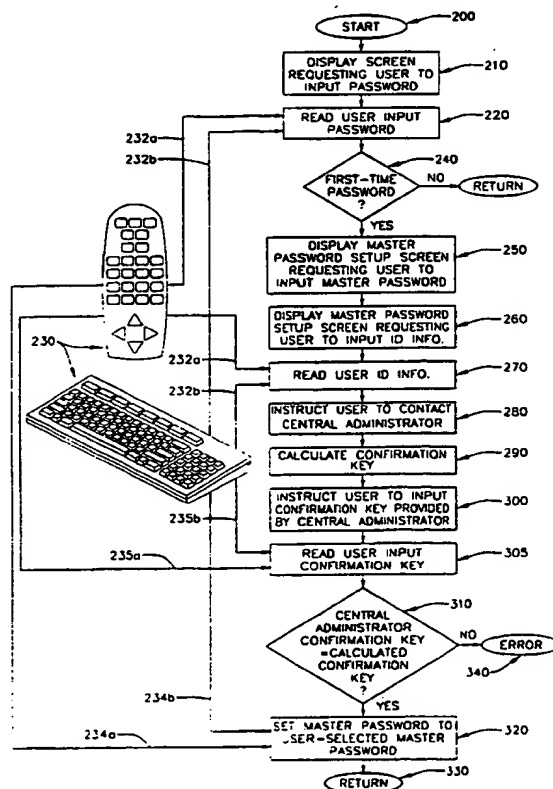
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(54) Title: APPARATUS AND METHODS FOR UNLOCKING PASSWORD PROTECTED SOFTWARE SYSTEMS TO RECOVER MASTER PASSWORD

(57) Abstract

The present invention provides apparatus and method for recovering a forgotten password while maintaining the security and integrity of protected software system. In particular, the present invention provides for a centralized contact, as the "central administrator" or "central administration". The present invention further provides for the identification of the particular user (10, 20, 30, 40, 50 and 60) to the particular local system, the identification of the particular local system to the central administrator, and the identification of the particular user to the central administrator. After providing all of the above-described proper identifications, the present invention provides for the identification of the forgotten password to the central administrator who then provides the forgotten password to the user. Also alternatively, the invention provides for the identification by the central administrator of a key that will unlock the software system (300) for the user so that the user can access the identification of the user's password.



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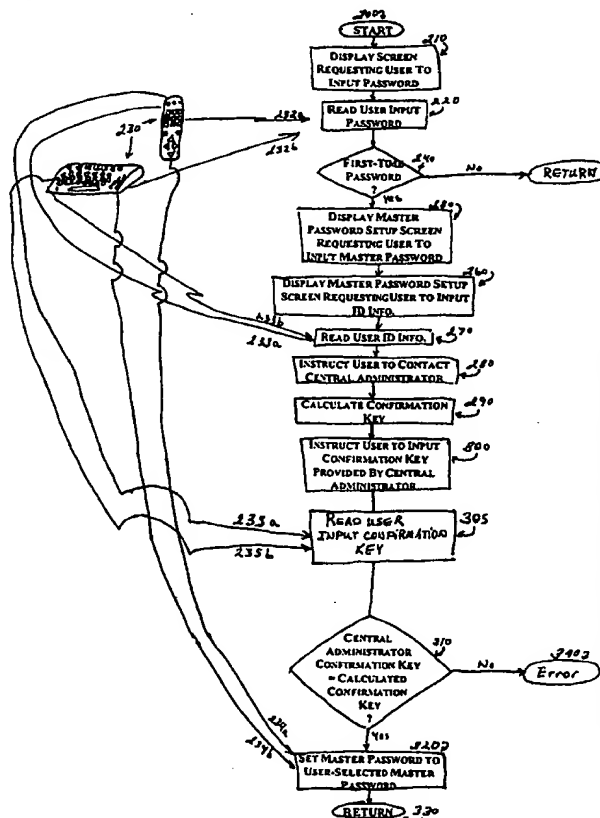
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The present invention provides apparatus and method for recovering a forgotten password while maintaining the security and integrity of protected software system. In particular, the present invention provides for a centralized contact, as the "central administrator" or "central administration". The present invention further provides for the identification of the particular user (10, 20, 30, 40, 50 and 60) to the particular local system, the identification of the particular local system to the central administrator, and the identification of the particular user to the central administrator. After providing all of the above-described proper identifications, the present invention provides for the identification of the forgotten password to the central administrator who then provides the forgotten password to the user. Also alternatively, the invention provides for the identification by the central administrator of a key that will unlock the software system (300) for the user so that the user can access the identification of the user's password.



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1 **APPARATUS AND METHODS FOR UNLOCKING PASSWORD PROTECTED
SOFTWARE SYSTEMS TO RECOVER MASTER PASSWORD**

5 **RELATED APPLICATION**

 This application claims the benefit of provisional Application No. 60/100.753 filed September 17, 1998, the disclosure of which is incorporated fully herein.

10 **FIELD OF THE INVENTION**

 The present invention relates generally to password protected software systems, and more particularly, to password protected software systems with on screen display, such as parental control-equipped electronic programming guide systems for television viewing.

15 **BACKGROUND OF THE INVENTION**

 Many software systems require the user to enter a password before the system will allow the user to access the system. Passwords must be recognized by the software system as giving the user authority to access the system. An example of a password protected software system is a parental control-equipped electronic programming guide system such as Gemstar's Guide Plus+ 99 equipped with V-Chip Plus+ In-Guide User Interface.

20 It is typically the responsibility of the user to remember the user's own password. If a user forgets the password, the user cannot access the system until the user again learns the password.

 Some password protected software systems are available on a network. In a networked system, there is typically a network administrator, online service provider, or the like, that establishes initial passwords, and assists the user in identifying a forgotten password.

25 In many password protected software systems, the user is provided a first-time password by the network administrator, online service provider, or manufacturer. When the user tries to access the system, the system prompts the user for the user's password. Some systems are programmed to recognize if the password is a "first-time" password. When the system detects a first-time password, the system prompts the user to choose a personal password. Alternatively, the "first-time" password is set to expire within a relatively short period of time or after a relatively short number of accesses. Systems are typically programmed to recognize the expiration date of a password and notify the user that the user must select a new password before the old password expires.

30 If the user forgets the chosen password, in the case of many online network systems, a systems or network administrator can typically recover the identification of the forgotten

1 password for the user. The systems or network administrator, who is typically at a location
remote from the user, can check security files internal to the system. By reading the internal
security files, the systems or network administrator can provide the user with the user's
5 password. Before disclosing the password, the systems administrator typically requires that
the user provide the systems administrator with the proper identification.

On the other hand, in the case of a system that is not networked, or in the case where
the systems software is not accessible by the user or by a systems or network administrator,
the password, once set, is known only to the system. In the present application, such systems
10 will hereinafter be referred to as "local systems." An example of a local system is an on
screen system for parental control of television viewing such as Gemstar's Guide Plus+ 99
equipped with V-Chip Plus+ In-Guide User Interface.

With a local system, there is no network administrator that can read the files from a
location remote from the user and provide the user with the chosen password. With such a
15 local system, a user could uncover the forgotten password by dismantling the device;
detaching the system hardware component that contains the password (e.g., RAM storage);
and sending the component to the manufacturer for analysis. This is a cumbersome and
impractical solution.

Another way to provide the user with the ability to recover the identity of a forgotten
20 password would be to allow the user to access the password. That is, the user could select an
option in the system that would display the password. However, such a method would be
self-defeating, in that others could equally access the password.

Still another way to provide the user with the ability to recover the identity of a
forgotten password would be to provide a "back door" method, such as: unplugging and
25 replugging the television; or pressing a combination of input keys, such as the keys on a
television remote control device. However, such "back door" methods could quickly become
discovered; as more and more households adapt the password protected system, such back
door methods would become widely known.

Because it is inevitable that some users will, from time to time, forget their passwords,
30 some method and apparatus for a user to recover a forgotten password is needed while
maintaining the security and integrity of the protected software system.

SUMMARY OF THE INVENTION

The present invention provides apparatus and methods that satisfy these needs.
35 Specifically, the present invention provides apparatus and methods for recovering a forgotten
password while maintaining the security and integrity of the protected software system. In
particular, the present invention provides for a centralized contact, hereinafter referred to as

1 the "central administrator" or "central administration." The present invention further
provides for the identification of the particular user to the particular local system, the
identification of the particular local system to the central administrator, and the identification
5 of the particular user to the central administrator. After providing all of the above-described
proper identifications, the present invention provides for the identification of the forgotten
password to the central administrator who then provides the forgotten password to the user.

Alternatively, the invention provides for the identification by the central administrator
of a key that will unlock the software system for the user so that the user can access the
10 identification of the user's password.

The procedure of identifying a forgotten password is generally referred to hereinafter
in this application as the master password recovery procedure.

DESCRIPTION OF THE DRAWINGS

15 These and other features, aspects, and advantages of the present invention will become
better understood with regard to the following description, appended claims, and
accompanying drawings where:

FIG. 1 is a graphical representation of one embodiment of a local system
implementation of an on screen setup procedure display requesting input of the personal
20 identification information for a user and the user's selection of a master password;

FIG. 2 is a flow diagram of one embodiment of a local system implementation of the
master password setup procedure;

FIG. 3 is a graphical representation of one embodiment of a local system
implementation of an on screen display of a master password recovery instruction screen.

25 FIG. 4 is a flow diagram of one embodiment of a local system implementation of the
master password recovery procedure.

DETAILED DESCRIPTION OF THE INVENTION

30 A central administration contact, hereinafter referred to in this application as the
central administrator, is established. The central administrator would be accessible by the
user, through, *e.g.*, a 1-800, or 1-900 telephone number, a website, etc. In the preferred
embodiment, the central administration contact is a completely automated Computer
Telephone Interface system. In the preferred embodiment, the automated central
administration system provides vocal communications to the user and requests that the user
35 provide input to the central administrator by pressing buttons on the user's telephone keypad.
Alternatively, the automated central administration system is programmed to recognize
speech so that the user can speak to the central administration system to provide requested

1 information.

5 **A. MASTER PASSWORD SETUP PROCEDURE**

When the user attempts to access the local system, the local system will prompt the user for the password. Typically, the first time that a password protected system is accessed, the system will allow the user to identify a password. This password is hereinafter referred to in this application as a "master password."

Alternatively, the manufacturer may provide the buyer of the system with a first-time password. FIG. 2 is a flow diagram of one embodiment of a local system implementation of the master password setup procedure where the user has been supplied a first-time password.

When the local system is first accessed, the user/buyer is prompted to supply the first-time password 210. Input of the password and other user input referred to herein may be accomplished using a variety of devices 230 and 450, including but not limited to an infra-red remote control device, such as a television remote control 232a, 233a, 235a and 452a, or a keyboard 232b, 233b, 235b and 452b. The input device used is not a limitation of the present invention.

Once the user/buyer supplies the first-time password 220 and 232a and 232b, the system will typically invite the user to choose a personal master password 250. Once the user chooses and inputs the master password 270 and FIG. 1, 80, the local system typically asks the user to confirm the master password by entering it a second time (not shown). If the user is unable to confirm the password, the local system typically reverts to the first-time password and the procedure starts all over again. The above-described procedure will be referred to hereinafter in this application as the "master password setup procedure."

During the master password setup procedure, one embodiment of the present invention requires that the user provide some additional identification information. This information would be information that would be known to the user but not typically known to others, such as, *e.g.*, the user's mother's maiden name, the user's mother's birth date, or other such personal information.

FIG. 1 is a graphical representation of one embodiment of a local system implementation of an on screen setup procedure display requesting input of the personal identification information for a user and the user's selection of a master password. In this embodiment, the user is invited to use a pull down menu (not shown) of the alphabet, special characters, and the numbers 0-9, or some other comparable method, to compose the user's input to the personal identification information screen. The personal identification information, to the extent that a particular embodiment of the present invention requires this information, will be referred to hereinafter in this application as "master password

1 identification information.” In FIG. 1, the embodiment of the setup procedure display screen
depicted requests the user to input the user’s first name (10), the user’s middle initial (20), the
user’s last name (30), the user’s birth date in MM/DD/YYYY format (40), the user’s
5 mother’s maiden name (50), and the user’s mother’s birth date in MM/DD/YYYY format
(60). The setup procedure display screen depicted provides for the user the serial number of
the unit (70). In one embodiment, the serial number is encrypted through a hashing function.
The user is also requested to input a selected Master Password (80).

10 In one embodiment of the invention, the master password setup procedure instructs the
user to contact the central administrator to provide certain user identification information
280. This further personal identification information may be in the way of a credit card
number, or may be the same as the master password identification information or may
include some personal identification information in addition to the master password
identification information. This further personal identification information is referred to
15 hereinafter in this application as “counter-identification information.”

20 In one embodiment of the invention, the master password setup procedure requires
confirmation from the central administrator that the counter-identification information has
been provided. In this embodiment, the local system and the central administration system
each use the same hashing function to each calculate a confirmation key. The central
administration computer system (or alternatively, the manual procedure to be performed by
the central administrator) and the local system are both programmed to perform a hashing
function on information already “known” to the television, for instance, the date, day of the
week, zip code of the location of the television, the cable or other programming service to
which the television is connected, the serial number of the television, etc. In an alternative
25 embodiment, the hashing function could be programmed to incorporate as part of the
calculation of the hashing key, information that was provided to both the local system and to
the central administrator by the user as part of the identification information.

30 The central administrator uses the central administration system to calculate the
appropriate confirmation key. The local system calculates the corresponding confirmation
key 290. The user would then be instructed to enter the confirmation key provided by the
central administrator into the local system 235a and 235b. The local system would read the
confirmation key input by the user 305. The local system would compare the input
confirmation key with the key that had been calculated by the local system 310. If the two
keys match, then the local system allows the user to proceed with the master password setup
35 procedure 320.

1 **B. MASTER PASSWORD CHANGE PROCEDURE**

Most password protected systems allow the user to change the password after it has been established. Password change procedures typically require that the user identify the current password before entering the new password; once the new password has been entered, password change procedures typically require the user to confirm the new password by entering the new password a second time. Such a password change procedure is also included in references herein to the "master password setup procedure."

10 **C. PASSWORD PROTECTION AND MASTER PASSWORD RECOVERY**

Every time after completing the master password setup procedure, whenever the user tries to access the local system, or in some embodiments, whenever the user tries to access protected blocked areas of the system, the local system prompts the user to supply the master password. If the user is unable to provide the master password, the system will not allow the user to pass the security screen of the system.

At this point, the invention provides that the user can access security processing for the local system. Specifically, the invention provides for a master password recovery process. FIG. 3 is a graphical representation of one embodiment of a local system implementation of an on screen display of a master password recovery instruction screen. FIG. 4 is a flow diagram of one embodiment of a local system implementation of the master password recovery procedure. In an alternative embodiment, the user will refer to a user manual or contact the manufacturer or retailer to identify contact information for the central administration system.

The local system security processor will ask the user to supply the master password identification information, to the extent that this information was requested during the master password setup procedure. The screen that requests the identification information will look like the setup screen, one embodiment of which is depicted in FIG. 1.

Once the requested information has been input, the security system will display a screen that will instruct the user to access the central administrator. This screen is hereinafter referred to as the "instruction screen." As seen in FIG. 3, the instruction screen will tell the user how to contact the central administrator (100), *e.g.*, to dial a particular telephone number, such as a 1-900 number, 1-800 number, or to access a particular website. The instruction screen will display information identifying the particular local system unit, such as the serial number of the particular local system unit (110, 405-410). In one embodiment, the instruction screen will also display a character string (120, 420-430). In one embodiment, the character string displayed will be encrypted and will contain, among other things, the forgotten master password, and to the extent that any was been requested by the local system.

1 the master password identification information.

Once the user contacts the central administrator, the central administrator will request that the user read from the instruction screen certain information. such as: device unit
5 identification information (110), for example, the serial number of the particular local system unit; and/or other information displayed on the user's local system screen, such as an encrypted character string (120). In one embodiment, the central administrator will further request that the user provide the counter-identification information previously provided to the central administrator during the master password setup procedure.

10 The central administrator will then use the information provided by the user to either provide the user with the user's master password, or with a key to unlock the user's system to, depending upon the embodiment, discover the forgotten master password, or to choose a new master password. The central administrator's function may be manually performed, or alternatively, may be programmed in the central administration computer system.

15 Depending on the embodiment, the central administrator may need to de-encrypt the information provided by the user. To de-encrypt the user-provided information, the central administrator may use a manual procedure or may enter the information into the central administration computer system which is programmed to de-encrypt the user-provided information. Depending on the embodiment, the central administrator will then test the de-
20 encrypted master password identification information against the counter-identification information. This comparison procedure may be either a manual procedure performed by the central administrator or may be performed by the central administration computer system.

In an embodiment in which the user reads to the central administrator an encrypted character string containing an encrypted master password, once the central administrator has
25 determined that the identification information is in order, the central administrator will de-encrypt the character string to identify the forgotten password. In one embodiment of the invention, the central administrator will then instruct the user to request the system to calculate a confirmation key. To do that, the user will choose an on screen option to calculate a confirmation key. In one embodiment, the local system will automatically
30 calculate 440 and 490 a confirmation key (130) and/or a counter-confirmation key (140). The security information system will display a screen that says that a confirmation key has been calculated (see FIG. 3, 130). The central administrator will then calculate a confirmation key and instruct the user to input the confirmation key. The user will then use a pull down menu (not shown), or some other comparable method, to input the confirmation
35 key. Once the user has input the confirmation key, the local system will test the two keys. If the key matches the local system confirmation key, the system will then display on screen a counter-confirmation key (140 and 500) and instruct the user to read the counter-

1 confirmation key to the central administrator. In one embodiment, the local system will then
set the master password to expire after a set period of time, *e.g.*, a day, 48 hours, a week, a
month, or after a set number of accesses, *e.g.*, after 1, 2 or 3 further accesses by the user of
5 the local system.

The central administrator will then tell the user the forgotten password.

In an alternative embodiment of the present invention, the
central administrator, as described above, will calculate a confirmation key and instruct the
user to input the confirmation key into the local system. The user will then use a pull down
10 menu (not shown) or some other comparable method to input the confirmation key. Once the
user has input the confirmation key, the local system will calculate, using the same hashing
function used by the central administrator, a local system confirmation key. The local system
will then test the two keys. If the key matches the local system confirmation key, the system
will then display on screen the user's master password (similar to 140 and 500).

15 In another alternative embodiment of the present invention, the central administrator,
as described above, will calculate a key, using, *e.g.*, a hashing formula, that will unlock the
user's system. The central administrator will then instruct the user to input the unlocking
key. The user will then use a pull down menu (not shown) or some other comparable method
to input the unlocking key. Once the user has input the unlocking key, the local system will
20 calculate, as described above, a key, using, *e.g.*, a hashing formula. The local system uses the
same hashing formula as is used by the central administrator and/or the central administration
computer system. In order for the two keys to match, the hashing formula must be applied by
the local system to the same information to which the central administrator's hashing formula
was applied. If the unlocking key matches the local system key, the local system will then
25 display on screen the user's master password (similar to 140 and 500). In an alternative
embodiment, in the case where the keys match, the local system will require that the user
immediately identify a new master password.

30 **D. AN ILLUSTRATIVE EMBODIMENT OF MASTER PASSWORD RECOVERY IN A V-CHIP
PLUS+ IN-GUIDE USER INTERFACE.**

As an illustrative embodiment of the present invention, the master password setup
procedure and the master password recovery procedure described above are implemented in
the following manner to allow a parent to unlock and recover the parent's master password
that governs a parental control-equipped electronic programming guide system such as
35 Gemstar's Guide Plus+ 99 equipped with V-Chip Plus+ In-Guide User Interface.

The parent/user purchases a television equipped with a parental control-equipped
electronic programming guide system such as Gemstar's Guide Plus+ 99 equipped with V-

1 Chip Plus+ In-Guide User Interface. The first time that the parent connects the television to a power supply and turns the system on, the parent is prompted through an initial setup procedure that includes a master password setup procedure. As part of the master password
5 setup procedure, the user/parent identifies a master password.

Later, in the event that the user/parent forgets the master password, the user/parent selects a security system option that displays a screen (the "instruction screen") on the television display monitor that instructs the user/parent to contact a central administrator through a 1-900 telephone number. The central administrator in this embodiment is a
10 completely automated Computer Telephone Interface system.

In an alternative embodiment, the user/parent refers to a user manual or contacts the manufacturer or retailer to identify contact information for the central administration system.

The central administration one-way hashing function will be performed on the current date to calculate an unlocking key. Alternatively, the central administrator, once contacted,
15 may ask the user to supply the television's serial number, and possibly, some other types of information as was described previously in this application. The user/parent will be instructed to enter the requested information using the user/parent's telephone key pad. Other types of information requested would be information that would be "known" to the television set, such as, e.g., the zip code of the location of the television set, the cable service
20 or other programming service to which the television is connected, etc.

The central administration computer system will then use a one-way hashing function to calculate an unlocking key. The central administration computer system will read the unlocking key to the user/parent and instruct the user/parent to enter the unlocking key into the user/parent's local television V-Chip Plus+ In-Guide User Interface system.

25 After the user/parent has entered the unlocking key into the local system, the local system will calculate an unlocking key using the same one-way hashing function as was used by the central administration computer system. The local system will then compare the two keys.

If the two keys match, the local television V-Chip Plus+ In-Guide User Interface system will then display on the television display monitor instructions to the user/parent to immediately choose a new master password. The user/parent must then use the appropriate
30 keys on the viewer's remote control device to identify a new master password. Once the user/parent has identified a new master password, the local system replaces the old master password in the system security files with the new master password and allows the user/parent to proceed with accessing local system functions.
35

As an optional feature, the user's system displays notification on the television display monitor notifying the user that the master password has been changed. The notification may

1 be displayed in the form of an information screen, insert, overlay, scrolling message, or other
such notification. The notification would be displayed every time the user turns the
5 television on for a certain number of times, or alternatively, for a certain number of days.

5 **Illustrative Embodiments.**

The embodiments of the invention described herein are only considered to be preferred
and/or illustrative of the inventive concept; the scope of the invention is not to be restricted to
such embodiments. Various and numerous other arrangements may be devised by one skilled
10 in the art without departing from the spirit and scope of this invention. For example, the
present invention can be implemented using a completely automated central administration
system capable of recognizing user information input with the user's telephone keypad or
capable of recognizing user speech. Alternatively, the present invention can be implemented
using a partially or completely manual central administration contact.

1
CLAIMS:

- 5 1. A method of resetting a password on a consumer device comprising:
displaying, by a particular consumer device, one or more items of information that are
specific to the particular consumer device;
communicating the one or more items of information to a central location;
performing a mathematical function on the one or more items of information to obtain
a central key at the central location;
10 entering the central key into the consumer device;
performing, in the consumer device, a mathematical function on the one or more items
of information to obtain a local key;
allowing the resetting of a password on the consumer device if the central key is found
to have to the local key for a predetermined without entering the original password.
- 15 2. The method of claim 1 wherein the mathematical functions are one-way hashing
functions
- 20 3. The method of claim 1 where the one or more items of information that are specific to
the particular consumer device are unique to the particular consumer device.
4. The method of claim 1 wherein the one or more items of information that are specific
to the particular consumer device are rare, but not necessarily unique.

**MASTER PASSWORD PERSONAL IDENTIFICATION INFORMATION AND
MASTER PASSWORD IDENTIFICATION**

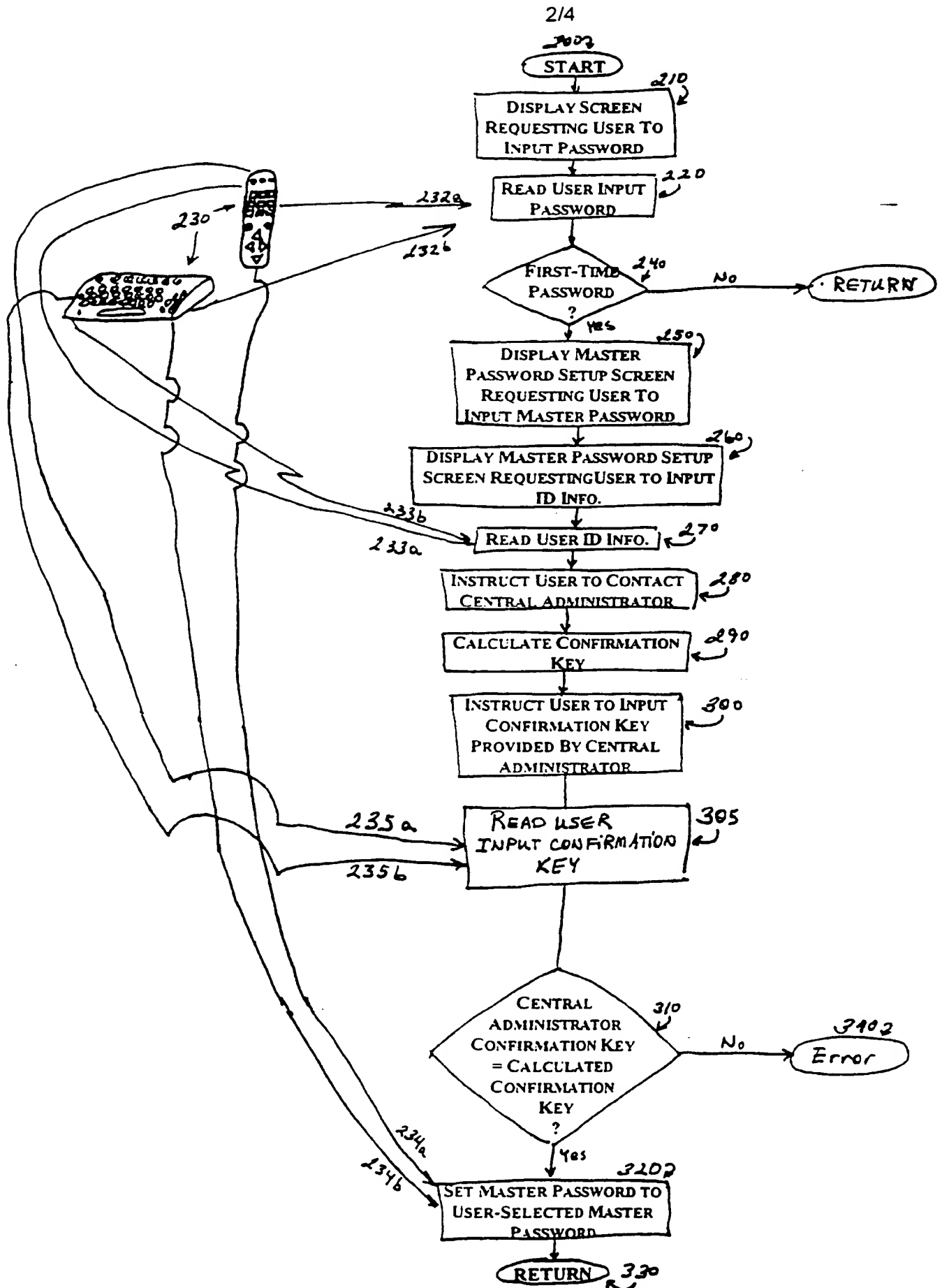
Your first name: _____ ↖ 10
Your middle initial: _____ ↖ 20
Your last name: _____ ↖ 30
Your birth date
in MM/DD/YYYY
format: ____/____/____ ↖ 40
Your mother's maiden
name: _____ ↖ 50
Your mother's birth
date in
MM/DD/YYYY
format: ____/____/____ ↖ 60

The serial number of your unit is : **XXXXXX** ↖ 70

Select a Master Password (10 characters or less) and enter it here :

_____ ↖ 80

FIG. 1



MASTER PASSWORD RECOVERY PROCEDURE

You have failed to input the master password for your unit. If you are unable to remember the password, please dial 1(800) 555-1212 and talk to the central administrator. The central administrator will ask you to provide certain identification information. The central administrator will also ask you to read the information from this screen. Therefore, you will find it useful to continue to display this screen while you talk to the central administrator. The master password recovery procedure will take approximately five (5) minutes to complete. This detailed recovery procedure is necessary to protect the security and integrity of your system. ¹⁰⁰

The central administrator will ask you to read the following device identification information. Please read the information exactly as you see it, including any spacing and special characters.

XX/\$98R32[;;W ¹¹⁰

The central administrator will ask you to read the following character string. Please read the information exactly as you see it, including any spacing and special characters. The central administrator will also ask you to provide some personal identification information.

Asdfiuj /a[xc0vb8 a-dg9w34 xc-b87 qv -9difj vq-wer9 -p8j n
pasidug-97 skfj n=98 asp98gy vqpwyu ¹²⁰

The central administrator will provide you with a confirmation key and ask that you input the key to the system. Please input the central administrator's confirmation key here: ¹³⁰

After you have input the central administrator's confirmation key, the system will calculate a counter-confirmation key that will be displayed here and which you will need to read back to the central administrator: ¹⁴⁰

FIG. 3

4/4

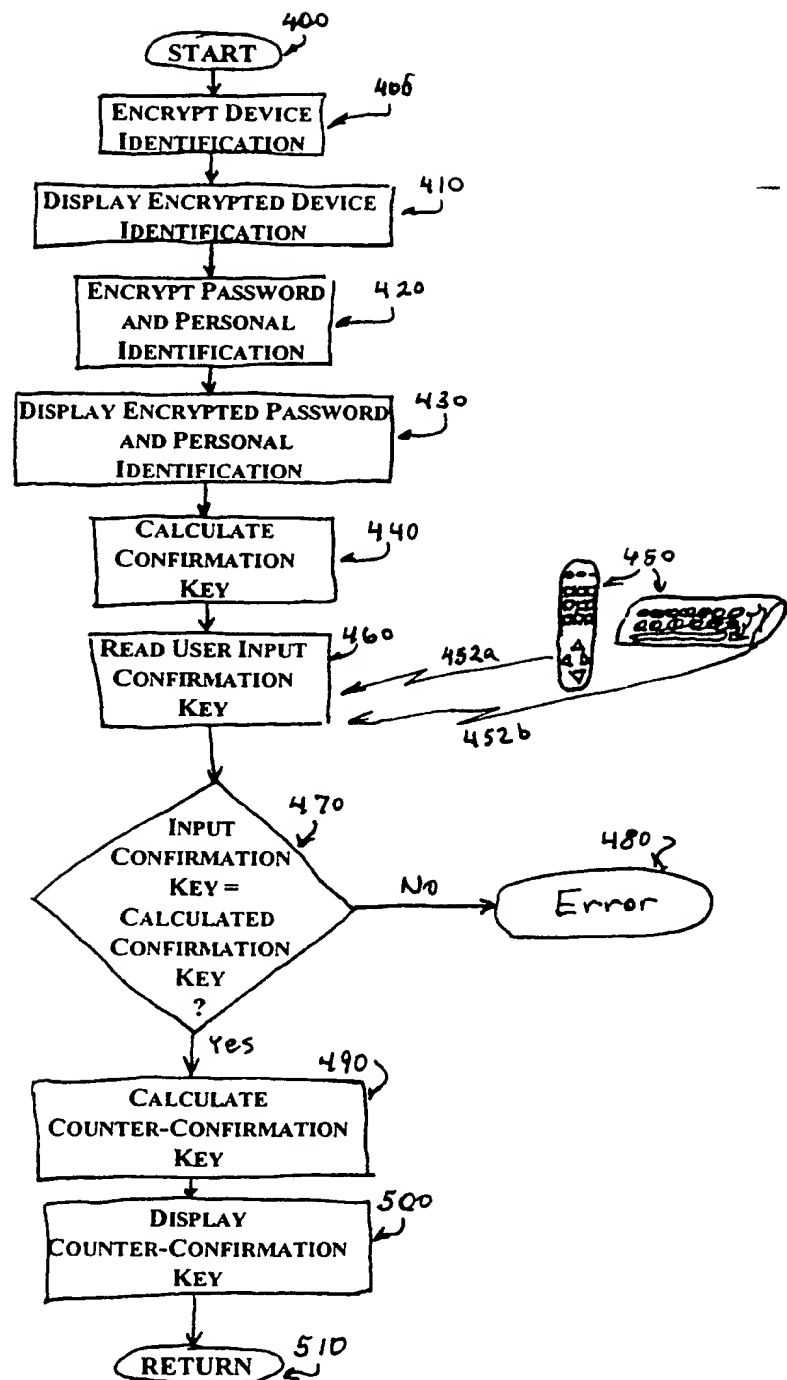


FIG. 4

JAN 24 2000

Christie, Parker & Hale, LLP

PATENT COOPERATION TREATY

WWM

From the INTERNATIONAL SEARCHING AUTHORITY

To: WELSEY W. MONROE
CHRISTIE, PARKER & HALE, LLP
POST OFFICE BOX 7068
PASADENA CA 91109-7068

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

Handwritten: 36006 PCT. ACTION *Handwritten:* 2/3/18/00 *Handwritten:* 24/18/00 *Handwritten:* in US? (no US. case) (PCT Rule 44.1)

REMINDER _____ DUE DATE _____
DEADLINE _____

Date of Mailing
(day/month/year)

18 JAN 2000

Applicant's or agent's file reference

FOR FURTHER ACTION See paragraphs 1 and 4 below

36006P/E 190
International application No.

PCT/US99/21507

International filing date
(day/month/year)

17 SEPTEMBER 1999

Applicant

E GUIDE, INC.

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Further action(s): The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 *bis* 1 and 90 *bis* 3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

Joseph Palys

Telephone No. (703) 305-9685

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
36006P/E190 International application No. PCT/US99/21507	International filing date (day/month/year) 17 SEPTEMBER 1999	(Earliest) Priority Date (day/month/year) 17 SEPTEMBER 1998
Applicant E GUIDE, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).
2. ☐ Unity of invention is lacking (See Box II).
3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing
 - ☐ filed with the international application.
 - ☐ furnished by the applicant separately from the international application,
 - ☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.
 - ☐ transcribed by this Authority.
4. With regard to the title,
 - ☒ the text is approved as submitted by the applicant.
 - ☐ the text has been established by this Authority to read as follows:
5. With regard to the abstract,
 - ☐ the text is approved as submitted by the applicant.
 - ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. The figure of the drawings to be published with the abstract is:
Figure No. 2
 - ☒ as suggested by the applicant.
 - ☐ because the applicant failed to suggest a figure.
 - ☐ because this figure better characterizes the invention.

☐ None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

New Abstract

The present invention provides apparatus and method for recovering a forgotten password while maintaining the security and integrity of protected software system. In particular, the present invention provides for a centralized contact, as the "central administrator" or "central administration". The present invention further provides for the identification of the particular user (10, 20, 30, 40, 50 and 60) to the particular local system, the identification of the particular local system to the central administrator, and the identification of the particular user to the central administrator. After providing all of the above-described proper identifications, the present invention provides for the identification of the forgotten password to the central administrator who then provides the forgotten password to the user. Also alternatively, the invention provides for the identification by the central administrator of a key that will unlock the software system (300) for the user so that the user can access the identification of the user's password.

PATENT COOPERATION TREATY

RECEIVED

OCT 02 2000

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT Christie, Parker & Hale, LLP

To: WELSEY W. MONROE
CHRISTIE, PARKER & HALE, LLP
POST OFFICE BOX 7068
PASADENA, CA 91109-7068

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

CASE # 36006 PCT.

REMINDER _____ DATE DATE _____
DEADLINE _____

Date of Mailing
(day/month/year)

28 SEP 2000

Applicant's or agent's file reference

36006P/I148

IMPORTANT NOTIFICATION

International application No.

PCT/US99/21507

International filing date (day/month/year)

17 SEPTEMBER 1999

Priority Date (day/month/year)

17 SEPTEMBER 1998

Applicant

INDEX SYSTEMS, INC.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

THOMAS BECKLER

James R. Matthews

Telephone No. (703) 305-9666

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 36006P/I148	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/21507	International filing date (<i>day/month/year</i>) 17 SEPTEMBER 1999	Priority date (<i>day/month/year</i>) 17 SEPTEMBER 1998
International Patent Classification (IPC) or national classification and IPC IPC(7): G06F 7/00 and US Cl.: 713/183		
Applicant INDEX SYSTEMS, INC.		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>6</u> sheets. <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of <u>0</u> sheets.
3.	This report contains indications relating to the following items: <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of report with regard to novelty, inventive step or industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input checked="" type="checkbox"/> Certain defects in the international application VIII <input checked="" type="checkbox"/> Certain observations on the international application

Date of submission of the demand 17 APRIL 2000	Date of completion of this report 23 JUNE 2000
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer THOMAS HECK <i>James R. Matthews</i> Telephone No. (703) 305-9666

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/21507

I. Basis of the report**1. With regard to the elements of the international application:***☒ the international application as originally filed☒ the description:

pages 1-10 , as originally filed
pages NONE , filed with the demand
pages NONE , filed with the letter of _____

☒ the claims:

pages 11 , as originally filed
pages NONE , as amended (together with any statement) under Article 19
pages NONE , filed with the demand
pages NONE , filed with the letter of _____

☒ the drawings:

pages 1-4 , as originally filed
pages NONE , filed with the demand
pages NONE , filed with the letter of _____

☒ the sequence listing part of the description:

pages NONE , as originally filed
pages NONE , filed with the demand
pages NONE , filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.**4. ☒ The amendments have resulted in the cancellation of:**☒ the description, pages NONE☒ the claims, Nos. NONE☒ the drawings, sheets/fig NONE**5. ☒ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).****

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/21507

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. statement**

Novelty (N)	Claims <u>1-4</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-4</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-4</u>	YES
	Claims <u>NONE</u>	NO

2. citations and explanations (Rule 70.7)

Claims 1-4 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest a method of resetting a password comprising displaying information that is specific to a particular device, sending this information to a central location, performing at the central location a mathematical function on the information to obtain a central key, entering the central key in the device, performing at the device a mathematical function on the information to obtain a local key, and allowing the resetting of the password on the device if the central key matches the local key.

----- NEW CITATIONS -----
NONE

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

The description is objected to as containing the following defect(s) under PCT Rule 66.2(a)(iii) in the form or contents thereof:
in the last sentence of the abstract "if the central key is found to have to the local key" is not clear.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

national application No.

PCT/US99/21507

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 1 is objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because the claim is indefinite for the following reason(s): in lines 10-11 "if the central key is found to have to the local key for a predetermined without entering the original password" is not clear.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/21507

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

I. BASIS OF REPORT:

5. (Some) amendments are considered to go beyond the disclosure as filed:

NONE

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US99/21507

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 7/00

US CL : 713/202

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 713/202, 201, 200

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

West search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,P	US 5,944,824 A (HE) 31 AUGUST 1999, col. 2, line 37 through col. 3, line 15 and col. 4, line 5 through col. 7, line 10.	1-4
Y,P	US 5,892,906 A (CHOU ET AL.) 06 APRIL 1999, col. 2, lines 10-53, and col. 3, line 29 through col. 7, line 47.	1-4
A	US 5,666,415 A (KAUFMAN) 09 SEPTEMBER 1997, entire document.	1-4
A	US 4,802,217 A (MICHENER) 31 JANUARY 1989, entire document.	1-4
A	US 4,786,900 A (KARASAWA ET AL.) 22 NOVEMBER 1988, entire document.	1-4

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*G* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

19 NOVEMBER 1999

Date of mailing of the international search report

18 JAN 2000

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

Joseph Palys

Telephone No. (703) 305-9685

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US99/21507

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	US 5,832,214 A (KIKINIS) 03 NOVEMBER 1998, entire document.	1-4
A,P	US 5,818,345 A (SJOOQUIST) 06 OCTOBER 1998, entire document.	1-4